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AUTHOR Catterall, James S.
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ABSTRACT

This paper draws on path-like models of student attrition developed by researchers concerned with American higher education to suggest a process model of dropping out of school which is applicable to secondary schools. It notes that existing research on school dropouts has been conducted largely without the guidance of such a model. Central features of the model, the academic and social systems of the school, are discussed and the influence of individual student characteristics and of activities in the larger social system are considered. Accumulated evidence on school dropouts is discussed in light of the suggested model. Ways in which this evidence tends to support the structure and central constructs of the model are explained. Four national longitudinal surveys are identified (Project Talent, Youth in Transition Survey, Survey of Youth and Labor Market Experience, and High School and Beyond Survey) and the major studies describing the surveys and using them to study dropouts are cited along with their findings. Findings are reported in the areas of pupil background factors, in-school performance and activities, and out-of-school interactions. Some implications of the model for future research into dropping out, the effects of legislated academic standards for the high school diploma, and dropout prevention efforts are explored. Four pages of references as well as figures and tables are included. (Author/NB)

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PROJECT: EFFECTS OF TESTING REFORMS AND STANDARDS

A Process Model of Dropping Out of School: Implications for Research and Policy In an Era of Raised Academic Standards

Study Director: James Catterall

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University of California, Los Angeles

A Process Model of Dropping Out of School: Implications for Research and Policy In An Era of Raised Academic Standards

James S. Catterall

University of California, Los Angeles

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A Process of Dropping Out of School: Implications for Research and Policy in an Era of Raised Academic Standards

Abstract

This article draws on path-like models of student attrition developed by researchers concerned with American higher education to suggest a process model applicable to secondary school leaving. Existing research on school dropouts is conducted largely without the guidance of such a model. Accumulated evidence on school dropouts is discussed in light of the suggested model and tends to support its structure and central constructs. Some implications of the model for future research into dropping out, the effects of legislated academic standards for the high school diploma, and dropout prevention efforts are explored.

A Process Model of Dropping Out of School: Implications for Research and Policy in an Era of Raised Academic Standards

Introduction

A suspected but unexamined result of more rigorous standards for the high school diploma is their discouraging effect on school completion. About a fourth of the nation's youngsters leave school without diplomas, and the warning that recently legislated academic orientations may swell the ranks of dropouts has sounded repeatedly over the past three years (Hamilton, 1986; McDill, Natriello, & Pallas, 1986; Business Advisory Commission of the Education Commission of the States, 1985; Howe, 1984; Edson, 1984).

Nearly all of the 50 state legislatures have enacted laws which appear to augment requirements for high school diplomas, and about half the states have mandated competency tests that must passed before diplomas are awarded (Goertz, 1986; Labaree, 1984). Since added courses, altered curricula, and mandatory tests for graduation are now widely operational, the next few years will undoubtedly yield attempts to gauge the true nature of these changes and their consequences for pupil persistence and achievement.

Just how might research into the school completion effects of academic reorientation proceed? It is suggested in this review that dropping out should be viewed as the result of cumulative processes in the lives of youngsters, and questions about standards or exit tests, along with research on dropouts more generally, should be framed against a longitudinal conception of pupil experiences. As many dropout

researchers and practitioners concerned with dropout prevention have noted, destructive patterns are often well in place by the time youngsters reach secondary schools. As such, the model developed here extends to the initial years of elementary schooling in its search for processes leading to school-leaving. Available research on dropouts suggests such a map for us, but it must be pieced together from multiple sources of evidence. A review of related literature reveals, perhaps ironically, that this quest for better early schooling models is best informed by conceptualizations developed for college attrition. More detailed models of student withdrawal grace research on those who leave post-secondary educational institutions than appear in analyses of school dropouts. For this paper, I extract from this more developed post-secondary tradition to sketch a working model applicable to school dropout behavior. Then accumulated evidence on dropping out is discussed in light of this tentative process structure.

The resulting configuration is a longitudinal model that could be refined and tested in future research. In addition, its apparent plausibility in light of existing evidence has implications for analyses of the effects of academic reforms on school continuation decisions and for the development of dropout prevention policies. A concluding section briefly explores these implications.

A Process Model of Schooling Leaving

Research on attrition from colleges provides a useful framework for organizing our knowledge about dropping out of school. Explicit models of student leaving at this level have followed a rich developmental course over the past twenty years, at least in comparison to studies which attend to secondary school leavers. As elaborated below, research

on school dropouts has tended instead to be atheoretical and to have concentrated on bivariate links between dropping out and a host of individual and school factors. This research is further limited by its reliance on the analysis of cross sectional rather than longitudinal data. Many researchers express an awareness that important processes are at play over the lives of those who eventually drop out, but this recognition has not led widely to the creation and estimation of longitudinal models (Steinberg, Blinde, & Chan, 1984; Natriello, Pallas, & McDill, 1986; an exception appears in Eckstrom, Goertz, Pollack, & Rock, 1986, which is discussed below).

The conceptual balance favoring higher education attrition research is worth a brief comment. Movement of students into and out of higher education is fluid, and the financial health of many colleges is linked very tightly to their ability to retain students (Kemerer, Baldridge, & Green, 1984). Half or more freshman leave some colleges during their first year. Thus institutional self interest alone has probably underwritten a sizeable body of this research through both direct funding and contributed cooperation. In contrast, school systems exhibit a great deal of ambivalence when it comes to understanding or treating issues of dropouts (Fine, 1986, Catterall, forthcoming). Many districts and states do not even generate reports on school leaving and cannot cite their dropout rates (Catterall, forthcoming; Hammack, 1986). One acknowledged reason for this is the expensive nature of dropout identification and tracking and the unwillingness of schools to allocate resources to these ends. Another is that schools face many challenges in their mission to serve all children and can find the departure of

slow learning or rebellious youngsters an advantage in tending to those who remain (Wehlage & Rutter, 1986; Fine, 1986).

Their impetus aside, a family of instructive models related to college attrition developed by Spady (1970), Tinto (1975), and Bean & Metzner (1985) is useful for us. These authors build on each other's work and trace the origins of their models to Durkheims's (1961) classic conception of the conditions under which individuals reject society through suicide. Their models focus on the central construct of institutional integration and its influences on maintaining affiliation with the colleges in question.

According to Durkheim, the individual may break his ties to a social system when he fails to integrate himself with the common life of that society. Two types of integration are critical -- normative congruence and collective affiliation. Normative congruence refers to the compatibility of an individual's attitudes, interests, and personality with the attributes and influences of his environment. Collective affiliation refers to supports provided by one's friends and associates. Failures to achieve either or both sorts of integration appear to underlie specific suicidal expressions in Durkheim's model.

Of course, suicide is more final than leaving school, but the analogy has proved rather satisfying to college attrition researchers. In the translation of the model, the college has been portrayed as two major sub-systems, the academic system and the social system. Research suggests that failure of the individual to integrate with either or both of these sub-systems can lead to withdrawal or expulsion from college. Lack of congruence with a school's academic norms can lead to failure. Lack of congruence with a college's social norms can lead to expulsion

or separation. Excessive social integration at the expense of academic integration may lead to flunking out. Academic values exceeding institutional expectations and norms can lead to transfer to a more demanding college. And so on. (Bean & Metzner, 1985, provide the most recent review of this literature.)

These post-secondary education studies incorporate the conditions of separation identified by Durkheim (integration deficiencies) into path-like models which trace the evolution of these conditions for individuals. I have constructed a model of school dropout decisions in Figure I that is based on this work.

Insert Figure 1 about here

Paralleling the tradition noted above, the central features of this model are the academic and social systems of the school. Successful interactions in these subsystems are shown to lead to successful integration. Academic integration is indicated by grade performance and academic learning. Social integration is indicated by the quality of student interactions with others at school -- peers, teachers, and administrators. Alienation or congruence in either of these sub-systems may have implications for the other, hence the double arrow drawn between them. For example, the overly social sophomore may suffer low grades. The overly bookish senior may have few friends. Or an individual may sufficiently value his social activities at school to tolerate the minimum academic efforts needed avoid harassment by teachers and school administrators.

Integration into the academic and social life of the school contributes to student allegiance to the central goals and values of the school. These values are shown as goal commitment and institutional commitment. Goal commitment refers here to a vector of aspirations for learning and for educational and occupational attainments. Institutional commitment refers to preferences for staying in school independent of future goals. (This notion of institutional commitment differs from post-secondary models where it refers to choice of a particular institution in a more wide open market of available choices.) These commitments contribute in turn to academic performance and social interactions. The longitudinal or process character of the model is most apparent in this cybernetic looping. Early success in school may forge commitments. Early commitments may lead to achievement and quality human interactions; these result in academic and social integration; stronger commitments to academic goals and school behavioral norms follow in turn. And the decision of interest to us -- dropping out -- becomes unlikely. Parallel but negative chains of events can be thought to lead to flagging commitments and to dropping out. I necessarily leave open at this point the precise ordering of these would-be causal chains -- a topic I return to below when research implications are drawn.

Individual pupils characteristics also enter the model and further reinforce its longitudinal character. After all, youngsters bring to kindergarten a distribution of endowments and values that associate strongly with subsequent educational outcomes (Sewell & Hauser, 1975; Coleman, et al., 1966; Jencks et al., 1972). Family background influences are shown in Figure 1 to operate in two ways. Values for

academic learning and socially acceptable modes of interaction can be initiated and reinforced by circumstances and activities at home. So family background affects commitments to academic and institutional goals in the model. An additional influence of family background, that on innate pupil ability, also enters the model. Innate pupil ability can then be considered an exogenous variable from the point of view of the school system itself and is shown to influence learning and grade performance directly.

Finally, activities in the larger social system may influence school dropout decisions. Labor market conditions drawing youth to the workplace or keeping them out may affect commitments to school and to the diploma, and may have implications for academic and social interactions within school. The overly involved student worker may have no time for academic pursuits or extracurricular activities. Or a barren job market may keep kids in school for lack of better things to do (see Coleman & Husen, 1985). And some school age youngsters adopt another traditional adult role, bearing and raising children, which has ties to leaving school before graduation.

The Evidence on Dropping Out of School in Light of the Model

Research findings on school dropouts have consistent and expected qualities. They are concentrated in background characteristics common to school leavers, in-school performance and behaviors prior to leaving, attitudes about schools and life, and a limited range of out-of-school activities. I will attempt to integrate systematically the major findings with the model in Figure 1.

A sizeable core of dropout research in based on a handful of national longitudinal surveys, surveys large enough to detect dropping

out along with other behaviors of interest to their designers. Large scale national surveys probing transitions from youth the adulthood are most frequently enlisted. The principal data collection efforts include Project Talent, 1960 to 1964, the Youth in Transition Survey, 1965 to 1970, the Survey of Youth and Labor Market Experience (YLME), 1979 continuing, and the High School and Beyond Survey (HS&B), 1980 and continuing. (The major studies describing these surveys and employing them to study dropouts are cited along with their findings below.) Of course, in addition to those employing data from these surveys, many of the studies reported are based on original (and smaller) data collection efforts.

The four national longitudinal surveys are at once a rich source of information of interest to dropout researchers and at the same time have contributed less than we would like toward developing process models of dropping out. In their favor, they include enough subjects in their samples to capture representative distributions of social and ethnic backgrounds, measureable grade performance, and in-school and out-of-school activities. As a result, we have a wealth of descriptors of who drops out and what they were up to immediately prior to leaving school. The High School and Beyond Survey even performed an extensive follow-up, including surveying and retesting, of half of the 3000 or so 1980 sophomores who dropped out before the second wave of data collection in 1982. And the Youth and Labor Market Experience survey provided an immediate cross section of American 14 to 21 year olds, some of whom had never finished high school. Thus the early consequences of dropping out are investigated in data from these two surveys.

A distinct limitation for researchers interested in the cumulative processes of school achievement and commitment is that these surveys generally began in the early high school years of their subjects -- the ninth grade for Project Talent, the eighth grade for a fraction YLME subjects, and the tenth grade for HS&B and Youth in Transition. None followed the students through critical earlier years of development and school interactions. Various data from these early years were sometimes generated from school records and self reports. Subject to the inherent limitations of these sources, such as the narrow slice of life captured in formal school records and potential inaccuracies in human reporting of past events, information suggesting processes important to our model emerge from this literature. Reports commonly group their findings according to pupil background factors, in school performance and activities, and out-of-school interactions. This organization corresponds to the principal sectors of the model in Figure 1.

Pupils Background Influences

Family Background Structure. I have already suggested an overwhelming finding of dropout research, the association of family background with eventual dropping out. Reporting on Project Talent, Combs and Cooley (1968) found that more than half of both male and female dropouts ranked in the lowest socioeconomic quartile. In this survey fewer than a fourth of male dropouts and a fifth of female dropouts hailed from the upper half of the SES distribution. Working with Youth in Transition data, Bachman, Green, and Wirtanen (1971) observed that about 60 percent of dropouts came from families in the lowest two of six measured socioeconomic levels. Dropout rates between

the sophomore and senior years in the recent High School and Beyond survey were more than 25 percent for low SES youngsters, about 13 percent for those in the middle, and less than 8 percent for high SES subjects (Eckstrom, Goertz, Pollack, & Rock, 1986).

The association of family background with educational performance and attainment generally is well known (Sewell & Hauser, 1975), and that this is mirrored in dropping out surprises no one. The processes through which these connections operate are less understood, but certain possibilities are suggested by research. Cook and Alexander (1980) determined that socioeconomic status* is the single strongest predictor of educational attainment among measures available in the early years of school, but then academic performance becomes a better predictor at higher grade levels. We also know that family background predicts educational achievement. This points to a process in which family background influences school performance positively (but not perfectly); school performance in turn contributes substantially to decisions to stay in school. This path is accommodated in the model.

Additional process-related influences of family background and home environment are supported in research on dropouts. Rumberger (1983) found that the presence of books and educational materials in the home is positively associated with school completion even when family earnings and ethnicity are controlled. Rumberger also found that the education level of the like-sexed parent was tied to school completion, suggesting that children look selectively within their families for

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* Customarily scaled as a composite of parents' education levels, parents' job status, and family income (Blau & Duncan, 1967).

educational role models. Ekstrom et al. (1986) report that dropouts in the High School and Beyond sample claim to spend less time at home discussing their experiences with their parents and that parents of dropouts spend less time monitoring their children's activities both in and out of school. These studies also suggest that independent of social class, coming from a one-parent household is associated with premature school leaving, and that kids from large families drop out more often. Such findings suggest that the intensity of family interest and involvement in schooling is important for school achievement, commitment, and completion, and that actual supportive circumstances within families may be better predictors of school outcomes than SES alone.

Findings regarding the independent influence of race and ethnic background on dropping out are mixed. We know that Blacks and Hispanics drop out more frequently than White youngsters. High School and Beyond data show Hispanic rates exceeding 25 percent (for the two year period between 1980 and 1982), Black rates of nearly 20 percent, and White dropout rates of about 14 percent. Steinberg, Blinde, & Chan (1984) report not-completed and not-in-school fractions 14 to 24 year olds based on a recent Census Bureau survey. Eleven percent in the entire sample, 18 percent of those with a non-English speaking background, and 40 percent of those whose dominant language not English had dropped out. Non-English speaking dominance was a substantial independent predictor of dropping out in this study. An obvious suggestion in terms of the model is that children who have difficulty speaking English are less likely to achieve either academic or social integration in school.

Studies employing strict controls with large samples of high schoolers question the independent importance of race or ethnicity in dropout decisions. Pallas (1984) found that Blacks and Hispanics in the High School and Beyond Survey dropped out less frequently than Whites when SES was controlled. Rumberger (1983) reached the same conclusion with the Survey of Youth Labor Market Experience data.

Academic Ability. Measures of academic ability and its connection with dropping out are included in many studies, with predictable results. The most recent High School and Beyond data reported by Eckstorm et al. (1986) show a negative relationship between sophomore ability (crudely indicated by scores on a vocabulary test) and dropping out. (They also report that the effect of ability on high school grades is about twice as strong as its effect on leaving school without graduating.) Earlier analysis of the High School and Beyond data assessed ties between scores on the entire six test battery and dropping out. (See Heyns & Hilton, 1982, for a description of the tests.) Twenty five percent of those scoring in the lowest composite score quartile left school between their sophomore and senior years. Dropout rates improved to 15.3 percent, 8.6 percent, and 3.7 percent for students in successively higher test performance quartiles (National Center for Educational Statistics, 1985).

Project Talent findings regarding pupil ability and dropping out are also robust. Combs and Cooley (1968) found that 80 percent of male dropouts and 74 percent of female dropouts scored in the bottom fourth of all students on Project Talent's 19-test battery. These assessments covered such skills as reading comprehension, mathematical computation, abstract reasoning, mechanical reasoning, memory, and visualization.

For all 19 tests administered in the 9th grade, eventual dropouts scored significantly lower than a comparison group of students who finished school but did not go on to college. Steinberg, Blinde, and Chan (1984) report in their extensive review of the literature that scores on aptitude or I.Q. tests stand out across numerous studies as significant predictors of school completion, independent of social class.

In-School Performance and Activities

Academic Achievement. Our model shows grade performance and learning as indicators of academic integration. As I have said, strong relationships between grades earned in school and school completion are evident across reported research. One such pattern of interest in a longitudinal model is early academic performance. More than half of the eventual dropouts in the Youth in Transition Survey had been held back for one or more grades prior to grade 10 (Bachman et al., 1971). Only 24 percent of the entire sample had encountered such detours. Early grade retention and absenteeism were also positively related to dropping out in studies by Howell and Frese (1982), and Stroup and Robbins (1972).

Grades earned in high school show robust connections to dropping out. About half of those reporting D averages in 9th grade in the Bachman study eventually dropped out compared to 2 percent of those reporting A averages. High School and Beyond sophomores show similar patterns: 2.9 percent, 8.1 percent, 18.5 percent, and 42.5 percent of sophomores reporting mostly A's, B's, C's, and D's respectively dropped out (National Center for Education Statistics, 1985). In terms of the model, we expect that those who do poorly in school may fail to adopt

its academic values as their own. Poor grades or low academic integration appear to be associated with low commitments to continue with or finish school.

Social Integration. Dissatisfaction, negative attitudes, and anti-social behavior are common among those who drop out. High School and Beyond provides by far the richest data on social aspects of student life, and analyses of HS&B data confirm what previous studies consistently found. Eckstrom et al. (1986) report dropouts to be absent and truant frequently; they are more likely than persisters to be involved in school disciplinary proceedings, to have been suspended or placed on probation, and to have had serious trouble with the law. They express less interest in school and low general satisfaction with how their education is going. Dropouts feel they are held in less esteem by others in the school, and feel less positively about themselves. They also report that their friends are less participating, less interested, less successful, and less inclined toward college. Low participation in extracurricular activities is reported by those who eventually drop out.

Given what we know about the average measured aptitude of eventual dropouts for school work and their apparently low levels of success in their classes, it is not surprising that negative attitudes about the institution prevail. Reflected in the model, I suggest that low levels of social integration probably result from low levels of academic integration. This suspicion, difficult to test conclusively on the basis of existing data, is voiced by others involved in analyses of dropout issues (Wehlage & Rutter, 1986; Steinberg, et al. 1984). (The model does accommodates a reciprocal path, however, which suggests that low academic integration could result from low social integration. Some

implications of the model's structure for empirical estimation are discussed below.)

Commitments to Schooling. I propose in the model that those who achieve effective academic and social integration in the school become committed to attaining more schooling, which renders attainment of a diploma more likely. Some limited indicators of commitment to schooling -- expressions of educational aspirations -- have been incorporated into dropout analyses. Studies which include such measures agree that lower educational aspirations are associated with dropping out (Bachman et al., 1971; Rumberger, 1983; Eckstrom et al., 1986). The High School and Beyond survey even included a question asking sophomores their own estimates of the likelihood they would finish school, and those who expressed any doubts were more likely to drop out (Wehlage & Rutter, 1986). The work of Sizer (1984) suggests that many high schoolers stay aboard for social reasons only, and strike non-disruption treaties with teachers which permit very minimal academic effort and confer passing grades and diplomas to academically non-engaged youngsters.

Out-of-School Activities

The model includes features of out-of-school activity for youth that dropout researchers have paid some attention to. Dropouts generally face (or hope to face) interactions with the world of work when they leave school and their experiences in the workplace while in school may influence their attitudes and decisions about staying enrolled. According to Eckstrom et al (1986) more than 40 percent of High School and Beyond sophomores reported holding jobs outside of

school, eventual dropouts and finishers alike. Dropouts reported working more hours and earning slightly more per hour than finishers. Two thirds of the dropouts reported finding their work more enjoyable than school, whereas just over half of the graduates reported this. Nearly a fourth of eventual dropouts indicated their jobs to be more important than school in comparison to a tenth of the graduates.

We have only weak evidence on any causal relationships between work outside of school and school continuation. As I discuss below, among self reported reasons for dropping out, having to work or simply choosing to work is not frequently offered as an explanation. Steinberg, Greenberger, Garduque, & McAuliffe (1982) present some evidence that when excessive amounts of time are spent working (beyond 15 hours per week), attendance, time spent doing homework, participation in extracurricular activities, and academic performance all suffer. Their data also indicate that the likelihood of working extensively is greater for those whose academic performance was lower prior to securing employment. The model's arrows between work and both social and academic integration are consequently double-headed. And we thus identify an additional process or mechanism reinforcing low academic and social integration into the school which may hinge on academic performance.

Self reports: Reasons expressed by students for dropping out. In addition to the characteristics, behaviors, attitudes, and social circumstances catalogued in survey research on dropouts, large numbers of dropouts in two of the national longitudinal surveys were asked to indicate the reasons why they dropped out. In the survey of Youth Labor Market Experience, all respondents aged 14 to 21 who were out of school and not in possession of a diploma were asked to indicate the primary reason why they left. A summary of these responses is shown in Table 1.

Insert Table 1 about here

Sophomores who dropped out in the High School and Beyond sample were asked to respond to a similar set of possible reasons for dropping out. Here, subjects indicated all reasons that applied, and not just the primary reason. A summary of these responses is shown in Table 2.

Insert Table 2 about here

Some overall patterns stand out in these data. School-related reasons for dropping out are acknowledged by a substantial number of youngsters. These echo many of the research findings described above. In the HS&B sample, "School was not for me" and "Had poor grades" were each cited by about one third of females and by about 46 percent and 38 percent of males respectively. As the primary cause for leaving, school-related reasons occupy a similar position among YLME respondents -- 44 percent of males and 32 percent of females cite school-related reasons, particularly dislike of school. Pregnancy or marriage plans influenced about one third of the females in both samples, with pregnancy more frequently cited by minority females and marriage plans by White females. Childbearing behavior is shown as an additional out-of-school circumstance in the model. Economic reasons such as choosing to work rank lower than school related reasons except for Hispanics males. The difference for this latter group, according to YLME, is a comparatively high incidence of home responsibilities.

Academic difficulties and negative feelings about school are acknowledged directly by many respondents. I suggested earlier that some other behaviors of dropouts, such as choosing work, may be a response to various difficulties at school. Choosing early pregnancy or marriage (if choosing is the right word) may also be a negative response to what school offers some young women and men. The joint presence of academic with other reasons for dropping out cannot be determined from YLME data, where only the single most important reason was selected by respondents. Analyses of HS&B data have not probed covariance patterns among the reasons for dropping out. But the higher incidence of school related reasons overall in the HS&B responses, together with totals in excess of 100 percent, suggests that they accompany economic or family reasons for some respondents.

The Contribution of Schools to Dropping Out. Most of the associations with dropping out described above attach first to individuals -- their backgrounds, abilities, attitudes and activities. Concentrating on individual correlates of dropping out reinforces the idea that dropping out is a form of deviant behavior, and an implicit assumption in much reported analysis is that it is important to identify cultural, social, or cognitive attributes that separate deviants from non-deviants. An alternative conception is suggested in the model offered here. This is that anyone might drop out of school, given the right circumstances. The most proximate and critical circumstances of dropping out are shown to be low academic and/or social integration. The development of these circumstances over the lives of children is of central interest to researchers and educators.

Schools appear to vary in the degree to which they reinforce or ameliorate alienation among students who find themselves in academic or behavioral trouble. Wehlage and Rutter (1986) find in HS&B data that dropouts perceive teachers to lack interest in students, that discipline systems are ineffective and unfair, and that there is widespread truancy in their schools. Wehlage (1983; 1986) and others (e.g. Hamilton, 1986) report on particular programs where potential dropouts benefit from focused interventions that have a common core of ingredients designed to integrate students into an active and productive in-school life. The common elements of program success reported include small size and low pupil teacher ratios, individualized attention to learner needs, a mix of work experiences and school experiences, and the attention of educators to the whole life of the youngster, in school and out. On this last point, the authors note that dropout-prone kids often experience stresses beyond school, such as parental neglect and abuse and involvement with illegal drugs, that are sometimes mediated by caring teachers.

The attention to potential or actual dropouts in some settings identified by these researchers contrasts sharply to what Fine (1986) found to be total indifference of school officials to students dropout decisions in a New York City high school. Natriello, Pallas, & McDill (1986), summing up a body of work recently incorporated into a special issue of Teachers College Record (Spring, 1986) on school dropouts, also stress the critical nature of school responsiveness as a focal point for future research. Observations in the "effective schools" literature that some schools dominated by pupils of low socioeconomic background manage to maintain successful and retentive learning environments also

suggest dropout prevention possibilities in the actions of teachers and administrators (Taylor & Valentine, 1985).

Implications of the Model and Available Evidence

The evidence on dropping out is supportive of the general features and structure of the model presented. Three primary sets of influences are portrayed to affect school continuation decisions -- pupil background and ability, in-school academic performance and behavior, and out-of-school activities, particularly the extent of labor market participation.

I argued on substantive grounds that dropping out is the result of a cumulative process in the lives of many youngsters. Although dropping out has a web of antecedents that are well described in the literature, and although some of the reasons offered by dropouts themselves do not have direct ties to their cognitive development in school, academic integration appears by all indications to be a very central component of decisions to drop out. The most significant correlates of leaving school before finishing -- socieconomic background, race, and ethnicity, pupil ability, educational aspirations, early grades and grade retention, high school grades, school disciplinary entanglements, and excessive paid work -- each directly represents, influences, or has known associations with academic success and integration. And the most comprehensive attempts to specify and estimate the independent contributions of these factors share the suggestion of this paper that low academic performance is the most powerful predictor of dropout (Pallas, 1984; Eckstrom et al., 1986).

Implications For Research. The central place of academics in the model appears to be well supported and is not likely to be challenged as

research on dropouts continues. A focus on the evolutionary character of the child's integration with the academic and social norms of the school is the most important suggestion for future research deriving from this discussion. We have long recognized that research on school dropouts would be improved by longitudinal designs that cover a more complete span of school years. This ideal is substantially compromised in panel studies of high schoolers. Similar pleas have fallen upon the broader field of status attainment research recently, with hopes that we might learn more of the underlying processes of attainment (Campbell, 1983).

Existing research on school leaving benefits from very limited early data for secondary school age subjects; what appears is generated primarily from school records, family histories, and retrospection by survey respondents. Early grade performance can be obtained with some precision; early attitudes and commitment cannot. These efforts have established, for instance, what we know about correlations between early school performance or grade retention and dropping out, but they have not led to anything like a longitudinal model of academic and social integration or of school continuation. Careful attention to the development of academic and social success (or failure) beginning in the elementary grades and concurrent tracking of demonstrated or expressed pupil congruence with academic and social norms would support estimation of the contributions of the model's constructs to ultimate school continuation and dropout decisions.

Both cautions and promises accompany this more-than-obligatory call for additional research. Technical caveats begin with a simple question of feasibility. The ideal represented here is a longitudinal study

spanning at least a dozen years. The desires of funders for results, metamorphosis of researchers' intellectual interests, and the need to publish frequent papers all undercut this sort of research.

Other technical questions concern the form and specification of the model. As drawn in Figure 1, the structure is a path-like model of the school continuation decision; it provides only a rough sketch of the more fully specified forms which might be submitted to analysis. The central variables occupying the discussion are shown, but no attempt has been made to include all potential mediating variables, to identify all relevant controls, or to identify specific indicators for the constructs. For example, controls for gender and language speaking status are not shown in the model, yet we believe that the processes of integration into the life of the school and persistence differ for girls versus boys, and for English speakers versus limited English speakers. I also have said little about the measurement of its principal constructs--family background, innate pupil ability, academic integration, social integration, or commitment to the goals of schooling.

An optimistic note derives from developments in our capacity to estimate and test models similar to the one presented. The basic form of the model is a nonrecursive structure with latent variables. The focal points -- family background, pupil ability, commitment, and integration are essentially latent constructs which can be scaled from observable indicators. The structure is nonrecursive because it describes reciprocal influences between the variables -- academic and social integration are shown to affect each other, as are the constructs of success and commitment. Ideally, longitudinal data beginning in the

primary grades will help to discern the patterns and flows of influence in the model. Recent advances in methods for estimating structural equation models (Joreskog, 1979) and the LISREL computer programs for performing calculations and tests (Joreskog & Sorbom, 1982) render such analysis at least feasible.

Some Implications for the Study of Standards. The model's critical suggestion that academic integration is central to school continuation decisions reinforces concerns about the impact of stiffer graduation and promotion standards on youth who may be considered likely to drop out. If academic difficulties have been consistently tied to premature school leaving in the past, the likelihood of new standards increasing the numbers of students who fail classes, or who fall behind in the numbers of credits needed for graduation, or who are required to repeat grades should be of critical interest to analysts. As McDill, Natriello, and Pallas (1986) have argued, making high school more difficult academically without extending additional resources to present candidates for failure is likely to push students out at the margin. And if academic integration is substantially developed through early processes, resources applied in the high school years to assist failing students with raised hurdles may prove to be very unproductive.

The academic reform research agenda must also include examinations of the operational nature of legislated standards since they may emerge in the schools in forms rather different from desciptions appearing in the language of laws and regulations. Analysis of standards and dropping out will also have to contend with a dismal state of affairs regarding the availability and consistency of institutional dropout data (Catterall, forthcoming).

Some Implications for Dropout Prevention Policies. Finally, the model suggests some insights into the workings of existing dropout prevention efforts and for the development of additional prevention strategies. Mann (1986) argues, without much dissent, that dropout prevention efforts in American schools have generally failed. This is roughly supported by the steady 75 percent completion-on-schedule record for American ninth graders over the past 16 years. The model captures a frequently articulated belief that by the time youngsters enter high school, where most of what can be called prevention programs are located, it is too late to divert many of those who are on the way out. Academic and/or social integration may be so low by the 9th or 10th grade that resucitative efforts yield few responses. The cumulative development of academic and social integration suggested by the model reinforces the need for attention to early interventions that might suppress cycles of failure and social disabilities. And the model hints that for elementary and secondary school youngsters, a central focus on academic integration within dropout prevention strategies is probably worthwhile.

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FIGURE 1

A PROCESS MODEL OF DROPPING OUT OF SCHOOL

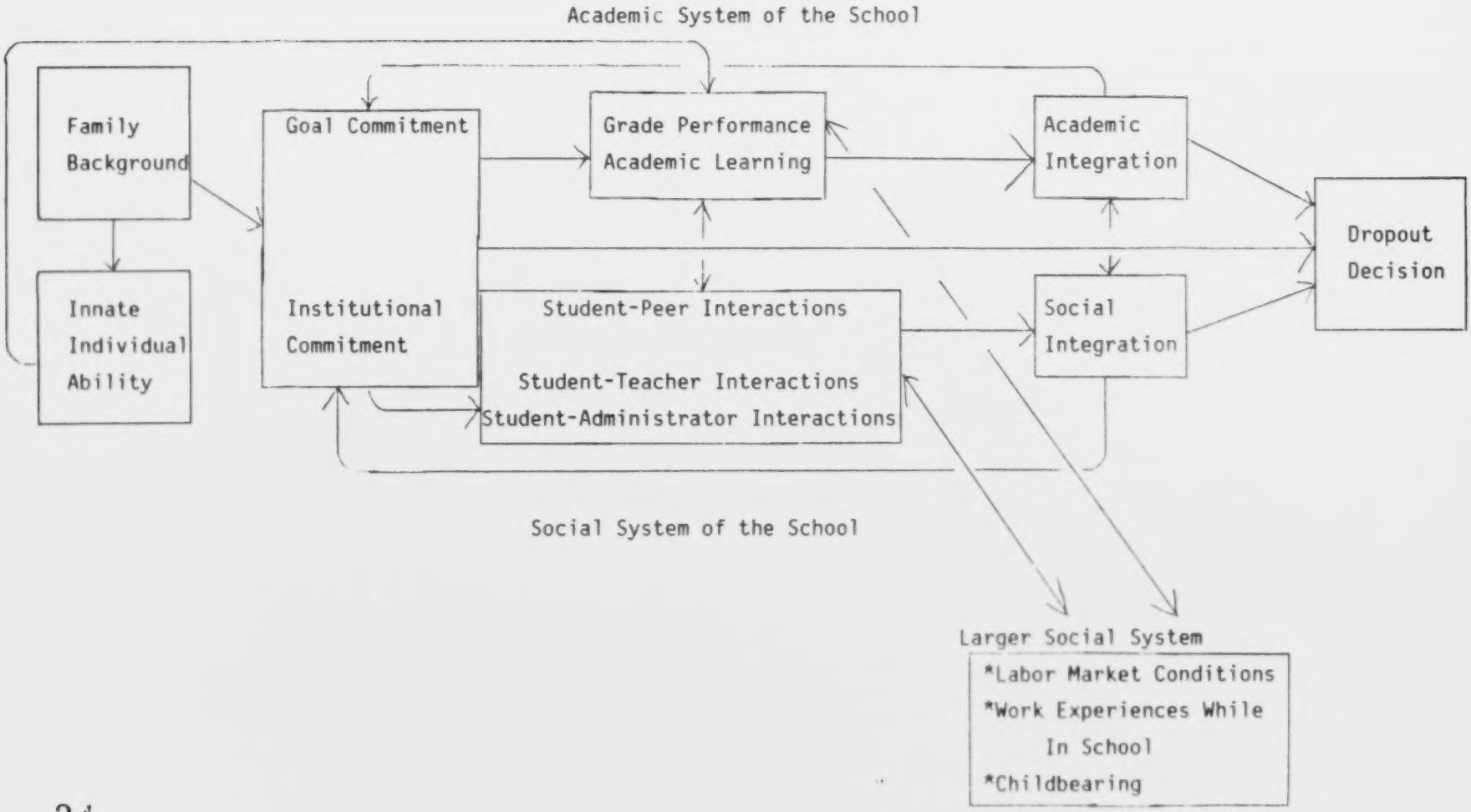

TABLE 1

Percentage of 1980 sophomore dropout from public and private schools reporting each of the reasons for leaving school before graduation, by sex and race/ethnicity.

Reasons	Male		Female	
	Minority	Other	Minority	Other
School related				
1. Expelled or suspended	14.3	12.3	3.2	6.3
2. Had poor grades	31.2	38.4	30.0	30.0
3. School was not for me	14.8	45.6	24.9	34.1
4. School ground too dangerous	2.2	2.9	3.1	1.1
5. Didn't get into desired program	12.8	4.7	5.0	4.2
6. Couldn't get along with teachers	22.0	19.8	8.1	10.2
Family-related				
1. Married or planned to get married	5.5	7.6	19.2	36.4
2. Was pregnant	N/A	N/A	29.2	20.5
3. Had to support family	21.5	9.3	10.6	7.1
Peer-related				
1. Friends were dropping out	6.0	6.7	1.7	2.7
2. Couldn't get along with students	6.6	4.7	5.7	6.0
Health-related				
1. Illness or disability	4.7	4.6	9.0	5.3
Other				
1. Offered job and chose to work	24.1	28.4	12.8	9.7
2. Wanted to enter military	8.3	6.7	1.1	.6
3. Moved too far from school	2.2	2.2	5.5	5.2
4. Wanted to travel	6.5	7.3	2.4	8.5
Sample size	537	648	486	615

Notes: 1. Students might report more than one reason.
2. Minority group includes Hispanics, Blacks, American Indians and Alaskan Natives. While and Asian Americans wer grouped together because they provided similar reasons for dropping out.
3. The standard error of the difference between two percentages (d) can be approximated by taking the square root of the sum of of standard errors by p_1 and p_2. That s.e (d) = [s.e. $(p_1)2$ + s.e. $(p_2)]^{\frac{1}{2}}$ where s.e. (p) = D $[p\ (100-p)/n]^{\frac{1}{2}}$. n is the sample size and D is a correlation factor estimated to be 1.6. The above approximation generally is conservative.
4. All percentages are based on weighted computatins.

Source: Peng, Takai, and Fetters (1983).

TABLE 2

Primary Reason High School Dropouts, 14 to 21 Years Old, Left School, by Race and Sex

Reason for Leaving School	Female				Male				Total
	Black	His-panic	White	Total	Black	His-panic	White	Total	
School Related	29	21	36	32	56	36	55	53	44
Poor performance	5	4	5	5	9	4	9	9	7
Disliked school	18	15	27	24	29	26	36	33	29
Expelled or suspended	5	1	2	2	18	6	9	10	7
School too dangerous	1	1	2	1	0	0	1	1	1
Economic	15	24	14	15	23	38	22	24	20
Desired to work	4	7	5	5	12	16	15	14	10
Financial difficulties	3	9	3	4	7	9	3	5	4
Home responsibilities	8	8	6	6	4	13	4	5	6
Personal	45	30	31	33	0	3	3	2	17
Pregnancy	41	15	14	19	0	0	0	0	9
Marriage	4	15	17	14	0	3	3	2	8
Other	11	25	19	20	21	23	20	21	19
Total Percent	100	100	100	100	100	100	100	100	100

Note. Source: National Longitudinal Survey of Youth Labor Market Experience. Distributions are percentage (Reported by Rumberger, 1983).